Environmental, Safety and Occupational Health Management System Defense National Stockpile Center

# RESPIRATORY PROTECTION PROGRAM REVISED AS OF 10 Mar 05

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**POLICY:** The primary method of controlling inhalation exposure to airborne contaminants shall be by engineering measures.

In the event feasible engineering controls cannot be instituted or are in the process of being implemented and the work atmosphere contains sufficient concentrations of contaminants as to be considered hazardous to life or health, appropriate respiratory protection shall be made available and shall be worn by all affected personnel knowingly exposed to those contaminants at DNSC sites.

Distribution Facility Managers shall coordinate with local fire fighting, rescue and hazardous materials response teams to ensure that adequate emergency protection will be provided to DNSC in the event airborne contaminants are of sufficient concentration as to be considered immediately dangerous to life or health. If conditions arise, where such exposure may occur (example fire in iodine or mercury warehouse) all persons shall evacuate the area and the appropriate fire and rescue personnel shall be notified immediately. All such incidents shall be reported to the DNSC Safety Manager as soon as all persons have been completely removed from the area. The use of self-contained breathing apparatus (SCBA) during emergency conditions shall be delegated to the fire, rescue, and hazardous material units that service DNSC sites.

**SCOPE:** Based upon this above stated policy and in compliance with Title 29 CFR part 1910.134, the following respiratory protection program shall be maintained at DNSC facilities.

**RESPONSIBILITY:** Distribution Facility Managers are responsible for the implementation, evaluation, continuing maintenance and effectiveness of the program. The RPD is responsible for selection and ordering of respirators, maintaining a sufficient supply of respirators, fit testing, and training. All DNSC personnel and any individual visiting or performing task at DNSC sites, which require the wearing of respiratory protection shall conform to all requirements herein.

## **DEFINITIONS:**

**Aerosols -** Liquid or solid particles dispersed in air. They are small enough to remain airborne for a period of time. Includes mist, smoke, fume, and dusts.

**Clean Shaven** - The total absence of facial hair (sideburns, beards, mustaches, goatees) in the area of the sealing surface of a respirator face piece.

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**Contaminate** - A harmful, irritating, or nuisance material in concentrations exceeding those normally found in the ambient air.

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**Dusts** - Solid particles generated by handling, crushing, grinding, rapid impact, detonation, or other mechanical actions. Dusts can be classified as organic or inorganic and due to their effect on the body, can be further classified as nuisance or irritants.

**Fumes** - Solid particles generated by condensation from the gaseous state such as when a solid metal is volatilized and then condenses in air. The result is referred to as a fume which is very fine.

Gases - Substances which are gaseous at ordinary temperature and pressures.

**Immediately Dangerous to Life or Health (IDLH)** - A condition posing an immediate threat to life or health, or an immediate threat of severe exposure to contaminates likely to have adverse delayed effects on health. This condition includes atmospheres in which the oxygen content by volume is less than 16 percent.

**Mists** - Mists are formed when a finely divided liquid is suspended in air as a result of splashing, foaming, or atomizing. Examples include oil mists from cutting and grinding operations, acid mists from electroplating, and paint spray mists from spraying.

**Oxygen-deficient atmosphere** - An atmosphere containing less than 19.5 percent oxygen.

**Particulate matter** - A suspension of fine solid or liquid particles or fibers in air, such as dust, fog, fume, mist, smoke, or sprays.

**Pneumoconiosis-producing dust** - Dust which, when inhaled, deposited and retained in the lungs, may produce signs, symptoms, and findings of pulmonary disease.

**Protection Factor (PF)** - A measure of the degree of protection afforded by a respirator.

**Respiratory Protection Designee (RPD)** - An individual who has attended a respiratory protection course of instruction on the OSHA and NIOSH respiratory protection and fit testing requirements. This individual shall be a specialist who has been designated in writing.

**Smoke** - The result of the incomplete combustion of carbonaceous material such as coal or oil.

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**Threshold Limit Value (TLV)** - The airborne concentration of a substance to which an individual may be repeatedly exposed eight hours a day forty hours a week without adverse health effects.

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**Vapors** - Vapors are the gaseous form of substances which are normally in the liquid state. Evaporation is the process by which a liquid is changed into the vapor state and mixes with the surrounding air.

## **Preselection Information**

It is essential that certain information be obtained before a respirator is chosen for protection.

The following questions should be answered prior to respirator selection:

- Is the contaminant a dust, mist, fume, vapor or gas?
- What is the concentration of the air contaminant (At times this can be approximated by prior monitoring results)?
- What is the Threshold Limit Value (TLV)?
- Is the atmosphere oxygen deficient?
- Is the material readily detectable below the TLV, and does it irritate the skin, nose or eyes?
- Does the concentration found approach that which is considered to be immediately dangerous to life or health (IDLH)?
- If the air contaminant is a gas or vapor, can it be absorbed by an available gas or vapor cartridge?
- Is the material readily absorbed through the skin?

#### **Selection Criteria:**

Respirator selection can begin when the answers to the pre-selection questions.

However no DNSC personnel shall wear any respirator other than half/full mask respirators. In addition only respirators that don't require replacement parts shall be selected. New respirators shall be purchased each year by the Respiratory Protection Safety officer. Oxygen deficient atmospheres and conditions that require

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filters other than Mercury and HEAPA filters will be accomplished by emergency or contract personnel.

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Determine if eye irritation is a factor. If it is, only full face piece respirators which provide eye protection can be used. (Example iodine).

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## **Protection Factor**

The next step in the selection process is to determine which devices provide the necessary protection. The protection factor represents the efficiency of a respirator. Respirators shall be selected based on their filtering limitations.

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#### Selection

Respiratory protective devices shall not be issued for any operation until proper selection has been made by the RPD. All respiratory equipment selected shall be from those approved by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 42CFR part 84. When applicable, the DNSC Occupational Health Guidelines for the specific commodity shall be used in determining the type of respiratory protection to be used. A listing is included in (enclosure 2) for cartridge selection to be used with air purifying respirators.

- 1. The test subject shall be allowed to pick the most comfortable respirator from a selection including respirators of various sizes. However no respirator shall be selected that has replacement parts.
- 2. The selection process shall be conducted in a room separate from the fit test chamber to prevent odor fatigue. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set the strap tension and how to determine a comfortable respirator. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, as it is only a review.
- 3. The test subject should understand that the employee is being asked to select the respirator which provides the most comfortable fit. Each respirator represents a different size and shape, and if fit properly and used properly will provide adequate protection.
- 4. The test subject holds each face piece up to the face and eliminates those which obviously do not give a comfortable fit. Normally, selection will begin with a half mask and if a good fit can not be found, the test subject will be asked to test the full face piece respirators.
- 5. The more comfortable face pieces are noted; the most comfortable mask is donned and worn at least five minutes to assess comfort. All donning and adjustments of the face piece shall be performed by the test subject without the assistance from the RPD.

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6. Assessment of comfort shall include reviewing the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

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- Positioning of the mask on the nose
- Room for eye protection.
- Room to talk.
- Positioning mask on face and cheeks.
- 7. The following criteria shall be used to help determine the adequacy of the respirator fit:
- Chin properly placed.
- Strap tension.
- Fit across nose bridge.
- Distance from nose to chin.
- Tendency to slip.
- Self-observation in mirror.
- 8. The test subject shall conduct the conventional negative and positive-pressure fit checks.

**Negative and Positive-Pressure Test** - The negative-pressure test shall be performed on tight fitting face-pieces only, by covering the air inlet lightly and inhaling slightly. If a leak exists, the air can be felt as it enters. The positive-pressure test is performed by blocking the exhalation valve and exhaling lightly. Again air leakage can be felt if a leak is evident. If such leaks are found, the respirator shall be adjusted and retested. Neither the negative nor positive-pressure test is considered to be a satisfactory initial fitting test. These tests are useful when donning a respirator, however, the position of the face may be affected by touching the face piece to block the air inlets and exits.

THE FOLLOWING DESCRIPTIONS ARE FOR INFORMATIONAL PURPOSES ONLY. AIR PURIFING RESPIRATORS OR SELFCONTAINED BREATHING APPARATUS ARE NOT AUTHORIZED FOR ROUTINE OR OCCASIONAL USE AT ANY STOCKPILE LOCATION.

## I. Air Purifying

**Description**: Half-mask and full face piece respirators equipped with air purifying cartridges or filters to remove gases, vapors, and particulate matter from the ambient air prior to its inhalation. Some air purifying respirators are blower operated and provide respirable air to the face piece or hood under a slight positive pressure.

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**Limitations**: Air purifying respirators do not protect against oxygen-deficient atmospheres nor against skin irritation, or absorption through the skin of airborne contaminates.

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## **Types:**

# a. Chemical Cartridge Respirators NOT AUTHORIZED

**Description**: Includes all completely assembled respirators which are designed for use as respiratory protection in areas which are not immediately dangerous to life or health, and are described according to the specific gases or vapors against which they are designed to provide respiratory protection.

**Limitations**: Chemical cartridge respirators shall not be used in atmospheres which are IDLH, and will be limited to the maximum concentration of gases and vapors specified on the cartridge.

# b. Gas and Vapor Removing Respirators NOT AUTHORIZED

**Description**: Packed sorbent beads remove single gases or vapors or a combination of two or more classes of gases and vapors by absorption, chemical reaction or catalysis, or a combination of these methods.

**Limitations**: No protection is provided against particulate contaminates, unless specified on the canister or cartridge label. A rise in the canister or cartridge temperature indicates that a gas or vapor is being removed from the respired air. This is not a reliable indicator of performance. An uncomfortably high temperature indicates a high concentration of gas or vapor, and requires an immediate return to fresh air.

## c. Dust, Mist, and Fume Respirators

**Description**: Include all completely assembled respirators designed for use as respiratory protection during entry into or escape from hazardous particulate atmospheres which contain adequate oxygen to support life. Devices may be attached to powered blower. Each device may contain the following component parts as required: Facepiece (half-mask or full), mouthpiece with nose clip, hood or helmet, filter unit, harness, attached blower, and breathing unit. These devices are further described as follows;

Respirators, either with replaceable or reusable filters, designed as respiratory protection against dust, mist, and fumes having maximum acceptable exposure limits less than 0.05 milligram per cubic meter (mg/m3) of air.

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Respirators with replaceable filters designed as respiratory protection against radon daughters, and radon daughters attached to dust, mist, and fumes.

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Respirators with replaceable filters designed as respiratory protection against asbestos containing dust and mist.

Single-use respirators designed as respiratory protection against pneumoconiosis and fibrous producing dust, or dust and mist, including asbestos.

**Limitations**: These respirators protect against nonvolatile particles only. They provide no protection against gases and vapors. The filter shall be replaced or cleaned when breathing becomes difficult due to plugging by retained particles. These respirators shall not be used during sandblasting operations.

# II. Atmosphere Supplying Respirators **NOT AUTHORIZED**

**Description**: Respirators in which a respirable atmosphere is supplied independent of the ambient air surrounding the wearer.

**Limitations**: Except in the case of supplied air suits no protection is provided against skin irritation by some contaminates. Face pieces present special problems to individuals required to wear eyeglasses.

## **Types:**

## a. Self Contained Breathing Apparatus (SCBA) NOT AUTHORIZED

**Description**: Includes all completely assembled portable self contained devices designed for use as respiratory protection during entry into and escape from, or escape only from hazardous atmospheres.

**Limitations**: The period of protection is limited to the amount of air in the unit. They also reduce the amount of work that can be done due to their weight and bulk.

# b. <u>Supplied-Air Respirators NOT AUTHORIZED</u>

**Description**: Includes all completely assembled respirators designed for use during entry into or escape from hazardous atmospheres. The respirable air is not limited by the amount any individual can carry as it is supplied by a air hose. They are also lightweight and relatively simple. The Type "C" supplied air respirator is the only supplied air respirator that could be used in the Stockpile. It is not for use in IDLH atmospheres. It consist of a source of respirable breathing air, a hose, a detachable coupling, control

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valve, orifice, demand or pressure demand valve, an arrangement for attaching it to the wearer and a face piece, hood, or helmet.

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**Limitations**: The wearer is restricted in movement by the hose or airline, and must return to a respirable atmosphere by retracing their route of entry.

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## **Training**

Training shall be conducted by the RPD.

No respirator shall be issued to any DNSC employee until they have received proper training. A record of that training shall be maintained on the form shown in (enclosure 3).

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The proper respirator will be of no value if the wearer is not fitted and trained in its use. Respirators <u>DO NOT</u> automatically fit the wearer. It is essential that the wearer's training start with a respirator fit test.

## Minimum training to be provided shall include the following:

- Instruction in the nature of the hazard, whether acute, chronic, or both, and a frank appraisal of what may happen if the respirator is not used.
- A discussion of the construction, operating principles and limitations of the respirators, including single use disposables.
- Explanation on why more positive engineering or process oriented controls are not immediately feasible to reduce or eliminate the need for respirators.
- Instruction on procedures for ensuring that the respirator is in proper working condition.
- Instruction on fitting the respirator properly and checking for fit and leakage.
- Detailed instruction on the proper cleaning and maintenance of the respirator.
- Instruction in emergency action to be taken in the event of malfunction.
- Training which provides the employees an opportunity to handle the respirator, wear the respirator in a normal atmosphere and to wear them in a test atmosphere.

## Refresher training shall be provided annually.

## **Fit Testing**

It is important that the respirator fit satisfactorily before entry into a contaminated atmosphere. Fit testing shall be conducted by the RPD on all persons prior to the

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issuance of a respirator. A record of fit testing shall be maintained on the form shown in (enclosure 3).

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Fit testing cannot be accomplished where facial hair interferes with the respirator face piece to obtain a proper seal with the individual's face. Section 19 of the OSHA Act requires the use of safety equipment, therefore, individuals who are required to wear respiratory equipment as part of their work assignments shall be clean shaven during respirator fit testing and usage.

#### Fit Test Protocols

Either the irritant fume protocol (enclosure 4) or the Saccharin Solution Aerosol protocol (enclosure 5) shall be used when performing fit testing.

## **Issuance of Respirators**

Respirators shall be assigned to individual workers for their exclusive use. Each person issued a respirator shall sign for that respirator indicating that it is their responsibility for possession, care and maintenance thereof. A record of this issuance shall be maintained at the depot. Upon termination of employment of the wearer, the respirator shall be turned in to the facilities manager. A record of this procedure shall be maintained in the same file. A respirator that has been "turned-in" may not be reissued; render it unserviceable and destroyed. Because of feasibility and cost no respirator shall be refurbished. If a respirator is found to be defective or damaged a new one will be issued on an exclusive use basis. New respirators shall be purchased each year for all persons requiring respirator use. All depots will maintain a sufficient back up of at least one of each size respirator used.

# Usage

Respirators shall be inspected by the wearer before and after each day's use. The inspection shall include negative and positive pressure checks for leakage.

Respirators issued to one worker shall not be issued to another.

Any worker who is not clean shaven shall not be allowed to wear a respirator, even through they have previously obtained a satisfactory fit with the particular device.

Glasses with standard temple bars shall not be worn with full face piece respirators. Glasses and goggles are permitted with half masks (air purifying) only if they do not interfere with the normal wearing and sealing of the mask.

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Parts from one manufacturer's respirator shall never be used with equipment manufactured by another.

Workers shall not remove their respirators in the work area. If it becomes necessary to remove the mask, the worker shall first leave the area.

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Single-use respirators shall be discarded at the end of each day's use, or more frequently when necessary.

Filters on half masks shall be discarded at the end of each week's work, prior to each cleaning, and at any time the user indicates breathing difficulties.

Filters used to protect against radioactive materials shall be discarded daily in a manner consistent with NRC regulations and guidelines.

## Cleaning, Maintenance, Storage, and Inspection of Respirators

To ensure that a respirator is serviceable beyond the first day it is used, a maintenance program shall be established. The major provisions of a maintenance program include but shall not be limited to:

Each respirator shall be cleaned after each day's use or more often if necessary.

Each respirator must be inspected as it is cleaned, and all deficiencies reported to RPD. If found to be damaged a new respirator will be issued for use. Prior to issuance personnel will be fit tested for new respirator.

After inspection, cleaning, respirators shall be stored in a clean, dry sanitary location so as to protect against dust, sunlight, heat, extreme cold, excessive moisture or damaging chemicals. Respirators shall be stored so that the face piece and exhalation valve will rest in a normal position and function will not be impaired by the ellastomer setting in an abnormal position.. Respirators should not be stored in lockers or tool boxes unless they are in carrying cases or cartons.

## **Respirator Inspection** shall be conducted prior to each use.

A continuing inventory and supply shall be maintained at each depot of all respirators (by make and model), and cleaning equipment.

Appropriate surveillance of work area conditions and degree of employee exposure shall be conducted by the DNSC Safety Manager.

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The DNSC Safety manager shall make an annual inspection at each depot to assure that respirators are properly selected, used, cleaned and maintained and to determine the continued effectiveness of this respiratory protection program.

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# **Medical Requirements**

No employee shall be assigned to tasks requiring the use of respirators unless it has been determined by a physician that they are physically able to perform the tasks assigned and use the respiratory equipment. The employee's medical status shall be evaluated and their ability to use respiratory protection shall be reviewed annually. The form in (enclosure 7) shall be used to record the employee's ability to use respiratory equipment.

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#### **Annual Review**

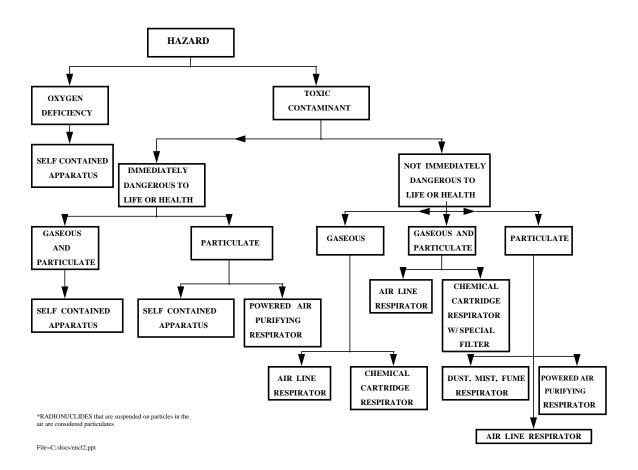
The execution of this program shall be reviewed by an RPD. The review shall include all facets of the program as described in the preceding pages. A written report shall be prepared utilizing DLAH Form 30 as a cover sheet and directed to DNSC-EH with a copy to DNSC-E. The report shall specifically note compliance or non compliance with selection, fit testing, medical exams, training, issuance, usage, cleaning, maintenance, storage, and inspection of respirators.

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## **ENCLOSURE 1**

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## **ENCLOSURE 2**

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# FREQUENTLY USED CARTRIDGES/FILTERS

CARTRIDGE/FILTER TYPE	COLOR
Dust, mists, fumes(HEPA) to include asbestos, radionuclide	Purple (Magenta) "P100"
Mercury	Orange

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# **ENCLOSURE 3**

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RESPIRATOR FIT TESTING AND TRAINING RECORD
NAME
DEPOT
JOB TITLE
LAST PHYSICAL
FIT TEST DATE
TYPE OF TEST - QUALITATIVE QUANTITATIVE (CHECK ONE)
TESTING AGENT (CHECK ONE)  IRRITANT FUME SACCHARIN SOLUTION AEROSOL
RESPIRATOR APPROVAL NUMBER
TYPE OF RESPIRATOR - AIRLINE RESPIRATOR AIR PURIFYING (CARTRIDGE TYPE)
TYPE OF FACEPIECE (CHECK ONE) HALF MASK FULL FACE
SIZE (CHECK ONE) SMALL MEDIUM LARGE
MANUFACTURER/MODEL
IN THE OPINION OF THE UNDERSIGNED, THE EMPLOYEE HAS DEMONSTRATED AN UNDERSTANDING OF THE TRAINING PROVIDED AND THE ABILITY TO USE THE RESPIRATOR PROPERLY.
NAME/SIGNATURE OF TESTER
I HAVE BEEN ISSUED THE ABOVE MENTIONED RESPIRATOR AND HAVE BEEN INSTRUCTED ON ITS PROPER CARE, USE, MAINTENANCE, AND LIMITATIONS.
I HAVE BEEN GIVEN ACCESS TO THE DLA/DNSC OCCUPATIONAL HEALTH GUIDELINES, AND MATERIAL SAFETY DATA SHEETS FOR THE MATERIALS STORED AT THE DEPOT, AND UNDERSTAND WHEN RESPIRATORY PROTECTION IS REQUIRED.
I UNDERSTAND THAT I MUST BE CLEAN SHAVEN FOR THE RESPIRATOR TO FIT AND OPERATE PROPERLY IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARD 29 CFR 1910.134.
NAME/SIGNATURE OF EMPLOYEE TESTED DATE

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#### **ENCLOSURE 4**

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#### IRRITANT FUME PROTOCOL

- 1. Respirators selected shall be equipped with high efficiency filters.
- 2. The test subject shall be allowed to smell a weak concentration of the irritant smoke to familiarize the subject with the characteristic odor.
- 3. The test subject shall properly don the respirator selected and wear it for at least 10 minutes before starting the fit test.
- 4. The RPD shall review this protocol with the test subject before testing.
- 5. The test subject shall perform the conventional positive pressure and negative pressure fit checks. Failure of either check shall be cause to select an alternate respirator.
- 6. Break both ends of a ventilation smoke tube containing stannic oxychloride. Attach a short length of tubing to one end of the smoke tube. Attach the other end of the smoke tube to a low pressure air pump set to deliver 200 milliliters per minute, orto a rubber bellows.
- 7. Advise the test subject that the smoke can be irritating to the eyes and instruct the subject to keep the eyes closed while the test is performed.
- 8. The RPD shall direct the stream of irritant smoke from the tube towards the faceseal area of the test subject. The RPD shall begin with the tube at least 12 inches from the facepiece and gradually move to within one inch, moving around the whole perimeter of the mask.
- 9. The test subject shall be instructed to do the following exercises while the respirator is being challenged by the smoke. Each exercise shall be performed for one minute.
  - a. Breathe normally
  - b. Breathe deeply. Be sure breaths are <u>deep</u> and <u>regular</u>.
- c. Turn head all the way from one side to the other. Be certain movement is complete. Inhale on each side. Do not bump the respirator against the shoulders.

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- d. Nod head up-and-down. Be sure motions are complete and made every second. Inhale when the head is in the full up position. do not bump the respirator against the chest.
- e. Talking. Talk aloud and slowly for several minutes. The following paragraph is called the rainbow passage. Repeating it after the test conductor (keeping eyes closed) will result in a wide range of facial movements, and thus be useful to satisfy this requirement. Alternative passages which serve the same purpose may be used.

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#### **RAINBOW PASSAGE**

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. people look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- f. Jogging in place.
- g. Breathe normally.
- 10. The test subject shall indicate to the RPD if the irritant smoke is detected. If smoke is detected, the test RPD shall stop the test. In this case, the tested respirator is rejected and another respirator is selected.
- 11. The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface.
- 12. If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit.
- 13. If a test subject exhibits difficulty in breathing during a test, they shall be referred to a physician trained in respiratory diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing their duties.
- 14. Fit testing shall be accomplished annually.
- 15. Retesting shall be accomplished whenever any of the following conditions exist.
  - a. Weight change of 20 pounds or more.
  - b. Significant facial scarring in the area of the face piece seal.

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- c. Significant dental changes such as multiple extraction's without prosthesis, or acquiring dentures.
  - d. Reconstructive or cosmetic surgery.
    - e. Any other condition that may interfere with face piece sealing.

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## **ENCLOSURE 5**

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## SACCHARIN SOLUTION AEROSOL PROTOCOL

## Taste Threshold Screening

- 1. Respirators selected shall be equipped with particulate filter.
- 2. An enclosure about the head and shoulders shall be used for threshold screening (to determine if the individual can taste saccharin) and fit testing. The enclosure shall be approximately 12 inches bin diameter by 14 inches tall with at least the front clear to allow free movement of the head when a respirator is worn.
- 3. The test enclosure shall have a three quarter inch hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
- 4. The entire screening and testing procedure shall be explained to the test subject prior to conducting the screening test.
- 5. During the threshold screening test, the test subject shall don the test enclosure and breath with their mouth open and their tongue extended.
- 6. Using a DeVilbiss Model 40 inhalation Medication Nebulizer or equivalent, the RPD shall spray the threshold check solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.
- 7. To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then is released and allowed to fully expand.
- 8. Ten squeezes of the nebulizer bulb are repeated rapidly and then the test subject is asked whether the saccharin can be tasted.
- 9. If the first response is negative, repeat and ask again.
- 10. If the response is still negative, repeat one more time.
- 11. If the saccharin is not tasted after 30 squeezes, the saccharin fit test can not be performed on the test subject.
- 12. If a taste response is elicited, the test subject shall be ask to take note of the taste for reference in the fit test.

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## Fit Test

1. The test subject shall properly don and adjust their respirator without the assistance from any person.

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- 2. The fit test uses the same enclosure used above.
- 3. Each test subject shall wear the respirator for at least 10 minutes before starting the fit test.
- 4. The test subject shall don the enclosure while wearing their respirator.
- 5. The test subject shall not eat, drink, or chew gum for 15 minutes before the test.
- 6. A second nebulizer is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test nebulizer.
- 7. As before, the test subject shall breathe with mouth open and tongue extended.
- 8. The nebulizer is inserted into the hole in the front of the enclosure and the fit test solution is sprayed into the enclosure using the same technique as for the taste threshold screening and the same number of squeezes required to elicit a taste response in the screening.
- 9. The test subject shall be instructed to do the following exercises while the respirator is being challenged by the smoke. Each exercise shall be performed for one minute.
  - a. Breathe normally
  - b. Breathe deeply. Be sure breaths are <u>deep</u> and <u>regular</u>.
- c. Turn head all the way from one side to the other. Be certain movement is complete. Inhale on each side. Do not bump the respirator against the shoulders.
- d. Nod head up-and-down. Be sure motions are complete and made every second. Inhale when the head is in the full up position. do not bump the respirator against the chest.
- e. Talking. Talk aloud and slowly for several minutes. The following paragraph is called the rainbow passage. Repeating it after the test conductor (keeping eyes closed) will result in a wide range of facial movements, and thus be useful to satisfy this requirement. Alternative passages which serve the same purpose may be used.

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#### RAINBOW PASSAGE

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- f. Jogging in place.
- g. Breathe normally.
- 10. At the beginning of each exercise, the aerosol shall be replenished using one-half the number of squeezes required to elicit the initial taste response.
- 11. The test subject shall indicate to the RPD if at any time during the fit test the taste of saccharin is detected.
- 12. If the saccharin is detected, the test RPD shall stop the test. In this case, the tested respirator is rejected and another respirator is selected.
- 11. The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface.
- 12. If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit.
- 13. If a test subject exhibits difficulty in breathing during a test, they shall be referred to a physician trained in respiratory diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing their duties.
- 14. Fit testing shall be accomplished annually.
- 15. Retesting shall be accomplished whenever any of the following conditions exist.
  - a. Weight change of 20 pounds or more.
  - b. Significant facial scarring in the area of the face piece seal.
- c. Significant dental changes such as multiple extraction's without prosthesis, or acquiring dentures.

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- d. Reconstructive or cosmetic surgery.
- e. Any other condition that may interfere with face piece sealing.

## ENCLOSURE 7

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MEDICAL QUESTIONNAIRE FOR RESPIRATOR USE	ERS	
NAMESOCIAL SECURITY NUMBEREMPLOYER		
SUPERVISOR		
DATE AGE HEIGHT WEIGHT	_	
WEIGHI		
Have you worn a respirator before? Yes No If yes, describe any apparent difficulties experi-	lenced	
Have you had or do you now have any of the follow	ving	
	Yes	No
1. Lung disease		
2. Persistent cough		
3. Heart Trouble 4. Shortness of breath		
5. History of fainting or seizures		
6. High blood pressure		
7. Diabetes		
8. Fear of tight or enclosed spaces		
9. Sensation of smothering		
10. Heat exhaustion or heat stroke		
11. Ruptured eardrum		
<ul><li>12. Defective vision</li><li>13. Defective hearing</li></ul>		
14. Contact lenses		
15. Other conditions that might interfere with		
respirator use or result in limited work ability		
16. Are you taking any medications		
Please explain Yes answers		

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# ENCLOSURE 7 CONTINUED

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REQUEST FOR MEDICAL CLEARANCE FOR RESPIRATOR USE QUESTIONNAIRE
Employee Social Security Number DOB Supervisor Depot
Circle Type or Types of Respirator(s) to be used
Air purifying (non powered) No other respirator is authorized by DNSC-EH
Level of work activity (circle one)
Light Moderate Heavy Strenuous
Extent of usage
<ol> <li>Daily basis</li> <li>Occasionally, more than once a week</li> <li>Rarely, or for emergency purposes</li> </ol>
Length of time of anticipated use in hours
Environmental conditions: high places, temperature, hazardous material, protective clothing
Physician's Evaluation  1. No restrictions respirator use  2. Some specific restrictions  3. No respirator use  Restrictions:
Examining Physician  Date

# **CAUTION**